TELEWAVE, INC.®

SYSTEM ENGINEERING REQUEST

Date: _____ Requested By: _____ Req'd Date: _____

Customer: _____ Phone: _____
Name: _____ Fax: _____
Site: _____ Email: _____

Equipment Requested: _____
_____
_____

Is rack required: Yes No Rack Size _____
To be expanded: Yes No
Duplexed: Yes No
Power Monitors: Yes No
Max. Ins loss of system: _____ dB
Is this a trunking system: Yes No
Duty Cycle of TX _____ % _____ CW Input Power _____

	TX Freq.	Input Power
1		
2		
3		
4		
5		
6		

	TX Freq.	Input Power
1		
2		
3		
4		
5		
6		

	RX Freq.
1	
2	
3	
4	
5	
6	

	Rx Freq.
1	
2	
3	
4	
5	
6	

Number of Antennas: _____ TX _____ RX
Antenna Gain, TX: _____ dB
RX: _____ dB
Antenna Separation: _____ Ft. Vert _____ Ft. Horiz.

SITE INFO: Are TX/FM/Paging present on site? Yes NO
Are other towers on Site: YES NO If So how far away _____ Ft.
Other TX on the tower? _____ MHz Power _____ W, Ant gain & Type _____
Antenna location on tower & tower size: Use back of page Sales: _____ Date _____
Area of coverage: Use back of page Engineer: _____ Date _____

660 Giguere Ct., San Jose, CA 95133
(408) 929-4400 (800) 331-3396
f (408) 929-4080

Local County

April 27, 2012

Color Code Legend
Location Names are colored: XXXXX
User/Frequency Names are colored: XXXXX
Transmit Frequencies are colored: XXXXX
Receive Frequencies are colored: XXXXX
Intermodulation Direct Hit Frequencies are colored: XXXXX
Intermodulation Near Hit Frequencies are colored: XXXXX
Deviation Calculations are colored: XXXXX
End of Color Code Legend

Summary of Transmit Frequencies

Location: SCC Not Specified
151.1000 -> SCC T1
154.3250 -> SCC T2
154.9500 -> SCC T3
155.0550 -> SCC T4
155.5650 -> SCC T5

Summary of Receive Frequencies

Location: SCC Not Specified
153.7700 -> SCC R1
153.9350 -> SCC R2
159.0300 -> SCC R3
159.1500 -> SCC R4
159.1950 -> SCC R5

ORDER -> 3
([SCC Not Specified -> SCC T4] **155.0550**) + (Only 2 required)
([SCC Not Specified -> SCC T4] 155.0550) -
([SCC Not Specified -> SCC T1] **151.1000**) => 159.0100
([SCC Not Specified -> SCC R3] 159.0300 Deviation Value => **0.0200** MHz.

ORDER -> 5
([SCC Not Specified -> SCC T2] **154.3250**) + (All 4 must be on at the same time)
([SCC Not Specified -> SCC T4] **155.0550**) +
([SCC Not Specified -> SCC T4] 155.0550) -
([SCC Not Specified -> SCC T3] **154.9500**) -
([SCC Not Specified -> SCC T5] **155.5650**) => 153.9200
([SCC Not Specified -> SCC R2] 153.9350 Deviation Value => **0.0150** MHz.

([SCC Not Specified -> SCC T3] **154.9500**) +
([SCC Not Specified -> SCC T4] **155.0550**) +
([SCC Not Specified -> SCC T4] 155.0550) -
([SCC Not Specified -> SCC T5] **155.5650**) -
([SCC Not Specified -> SCC T5] 155.5650) => 153.9300
([SCC Not Specified -> SCC R2] 153.9350 Deviation Value => **0.0050** MHz.

END OF REPORT

Local Country

April 27, 2012

Color Code Legend
Location Names are colored: XXXXX
Direct-frequency Items are colored: XXXXX
Transmit Frequencies are colored: XXXXX
Receive Frequencies are colored: XXXXX
Intermodulation Direct Hit Frequencies are colored: XXXXX
Intermodulation Near Hit Frequencies are colored: XXXXX
Deviation Calculations are colored: XXXXX
End of Color Code Legend

Summary of Transmit Frequencies

Location: SCC Not Specified
151.1000 -> SCC T1
154.3250 -> SCC T2
154.9500 -> SCC T3
155.0550 -> SCC T4
155.9550 -> SCC T5

Summary of Receive Frequencies

Location: SCC Not Specified
153.7700 -> SCC R1
151.9250 -> SCC R2
156.0250 -> SCC R3
158.1500 -> SCC R4
158.1650 -> SCC R5

ORDER -> 3

(SCC Not Specified -> SCC T4) 155.0550 + (Only 2 required)
((SCC Not Specified -> SCC T4) 155.0550) -
((SCC Not Specified -> SCC T1) 151.1000) =>
((SCC Not Specified -> SCC R3) 156.0250 Deviation Value => 0.0700 MHz

ORDER -> 5

((SCC Not Specified -> SCC T2) 154.3250) + (All 4 must be on at the same time)
((SCC Not Specified -> SCC T4) 155.0550) +
((SCC Not Specified -> SCC T4) 155.0550) -
((SCC Not Specified -> SCC T4) 154.9500) -
((SCC Not Specified -> SCC T3) 155.9550) =>
((SCC Not Specified -> SCC R5) 158.1650 Deviation Value => 0.0150 MHz

((SCC Not Specified -> SCC T2) 154.3250) +
((SCC Not Specified -> SCC T4) 155.0550) +
((SCC Not Specified -> SCC T4) 155.0550) -
((SCC Not Specified -> SCC T3) 155.9550) -
((SCC Not Specified -> SCC T3) 155.9550) =>
((SCC Not Specified -> SCC R5) 158.1650 Deviation Value => 0.0550 MHz

END OF REPORT

Local County (155.0550 MHz moved to separate Antenna)

April 27, 2012

Color Code Legend
Location Names are colored: XXXXX
User/Frequency Names are colored: XXXXX
Transmit Frequencies are colored: XXXXX
Receive Frequencies are colored: XXXXX
Intermodulation Direct Hit Frequencies are colored: XXXXX
Intermodulation Near Hit Frequencies are colored: XXXXX
Deviation Calculations are colored: XXXXX
End of Color Code Legend

Summary of Transmit Frequencies

Location: SCC Not Specified
151.1000 -> SCC T1
154.3250 -> SCC T2
154.9500 -> SCC T3
155.5650 -> SCC T5

Summary of Receive Frequencies

Location: SCC Not Specified
153.7700 -> SCC R1
153.9350 -> SCC R2
159.0300 -> SCC R3
159.1500 -> SCC R4
159.1950 -> SCC R5

ORDER -> 3
NO INTERMODULATION PRODUCTS DETECTED.

ORDER -> 5
NO INTERMODULATION PRODUCTS DETECTED.

END OF REPORT

Lucral Liberty (139.0589 MHz moved to separate Particular)

April 27, 2012

Color Code Legend
Location Names are colored: XXXXX
User/Frequency Names are colored: XXXXX
Transmit Frequencies are colored: XXXXX
Receive Frequencies are colored: XXXXX
Intermodulation Direct Hit Frequencies are colored: XXXXX
Intermodulation Near Hit Frequencies are colored: XXXXX
Division Calculations are colored: XXXXX
End of Color Code Legend

Summary of Transmit Frequencies

Location: SCC Not Specified
161.1000 -> SCC T1
161.3250 -> SCC T2
161.9500 -> SCC T3
162.0250 -> SCC T4

Summary of Receive Frequencies

Location: SCC Not Specified
153.7700 -> SCC R1
153.9350 -> SCC R2
154.0000 -> SCC R3
154.1300 -> SCC R4
154.1900 -> SCC R5

ORDER -> 2
NO INTERMODULATION PRODUCTS DETECTED.

ORDER -> 3
NO INTERMODULATION PRODUCTS DETECTED.

END OF REPORT

All TRANSMITTERS

VHF

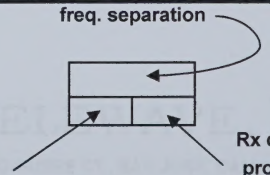
		2.500	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	
		153.5000	156.0000	156.1100	156.2200	156.3300	156.4400	156.5500	156.6600	156.7700	156.8800
All RECEIVERS											
	156.0000	2.500	0.000	0.110	0.220	0.330	0.440	0.550	0.660	0.770	0.880
2.500		59 53		75 106	73 102	72 95	71 91	69 85	68 82	67 79	65 75
	158.5000	5.000	2.500	2.390	2.280	2.170	2.060	1.950	1.840	1.730	1.620
0.100		53 35	59 53	59 55	59 55	60 58	60 58	60 61	60 61	61 64	61 64
	158.4000	4.900	2.400	2.290	2.180	2.070	1.960	1.850	1.740	1.630	1.520
0.100		54 35	59 53	59 55	60 58	60 58	60 61	60 61	61 64	61 64	62 66
	158.5000	5.000	2.500	2.390	2.280	2.170	2.060	1.950	1.840	1.730	1.620
0.100		53 35	59 53	59 55	59 55	60 58	60 58	60 61	60 61	61 64	61 64
	158.6000	5.100	2.600	2.490	2.380	2.270	2.160	2.050	1.940	1.830	1.720
0.100		53 35	59 53	59 53	59 55	59 55	60 58	60 58	60 61	60 61	61 64
	158.7000	5.200	2.700	2.590	2.480	2.370	2.260	2.150	2.040	1.930	1.820
0.100		53 35	58 51	59 53	59 53	59 55	59 55	60 58	60 58	60 61	60 61
	158.8000	5.300	2.800	2.690	2.580	2.470	2.360	2.250	2.140	2.030	1.920
0.100		53 35	57 49	58 51	59 53	59 53	59 55	59 55	60 58	60 58	60 61
	158.9000	5.400	2.900	2.790	2.680	2.570	2.460	2.350	2.240	2.130	2.020
0.010		52 34	57 49	58 51	58 51	59 53	59 53	59 55	59 55	60 58	60 58
	158.9100	5.410	2.910	2.800	2.690	2.580	2.470	2.360	2.250	2.140	2.030
0.010		52 34	57 49	58 51	58 51	59 53	59 53	59 55	59 55	60 58	60 58
	158.9200	5.420	2.920	2.810	2.700	2.590	2.480	2.370	2.260	2.150	2.040
		52 34	57 49	57 49	58 51	59 53	59 53	59 55	59 55	60 58	60 58

2.920 MHz RX Spread | 3.380 TX Spread

COMPANY=>	Company Name	
SITE=>	Site	
TRANSMITTER POWER (WATTS)=>	50	
ANTENNA SPACING: VT(FEET) =>	20	53
HZ(FEET):	n.a.	
DATE: 01/25/12 BY=>	j.eagleson	
	154 MHz (min)	

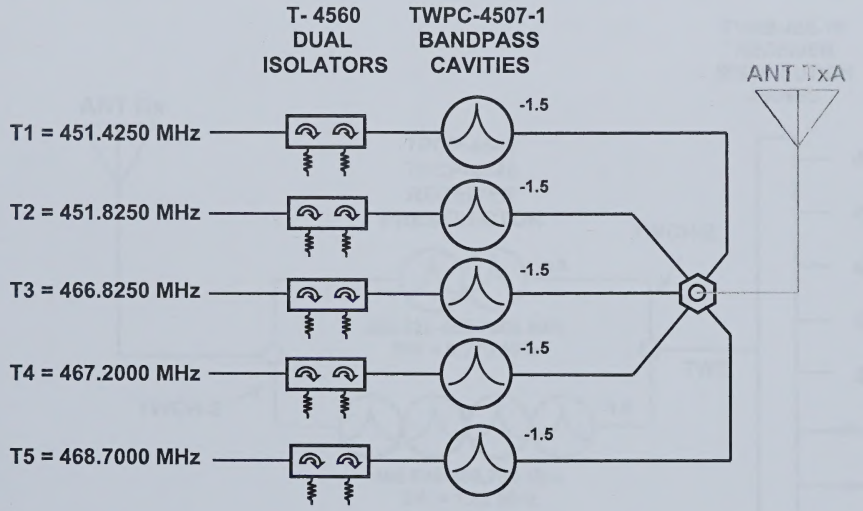
dB Min

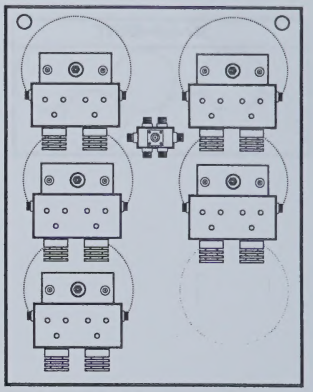
Tx sideband protection needed in -dB



Rx desense protection needed in -dB

Rx-to-Rx Spacings	Tx-to-RX Spacings	Tx-to-Tx Spacings	Tx Sideband Protection	Rx Desense Protection	Note: Re-calculates levels
<30kHz = Bright Red	<250kHz = Bright Red	<125kHz = Bright Red	>70dB = Bright Red	>70dB = Bright Red	if TX power is changed
30-40kHz = Dark Red	250-1000kHz = Dark Red	125-1000kHz = Dark Red	60-70dB = Dark Red	60-70dB = Dark Red	from 100W, nominal.





NOTES:

Hutton – Stand Alone Repeaters

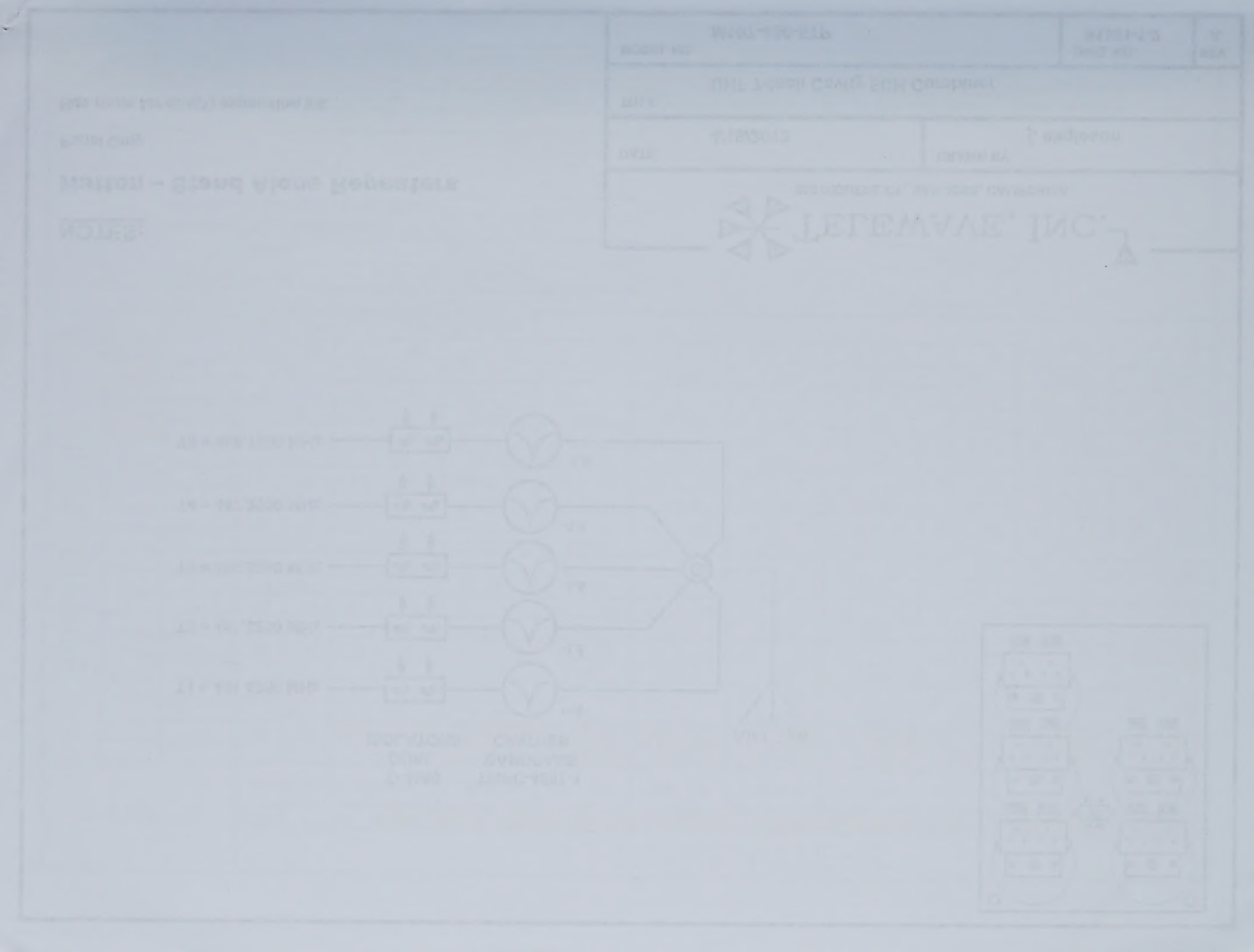
Panel Only

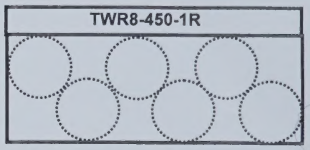
Has room for one(1) expansion kit.

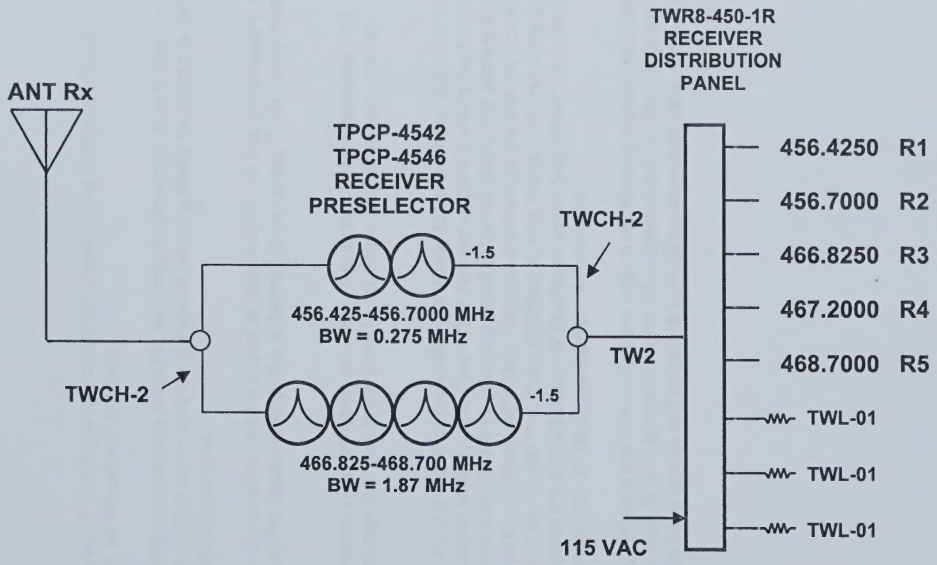
TELEWAVE, INC.

660 GIGUERE CT., SAN JOSE, CALIFORNIA

DATE: 4/19/2012	DRAWN BY: j. eagleson
TITLE: UHF 7-inch Cavity 5CH Combiner	
MODEL NO: M107-450-5TP	DWG. NO. 91351-1-2 / REV. A







NOTES:

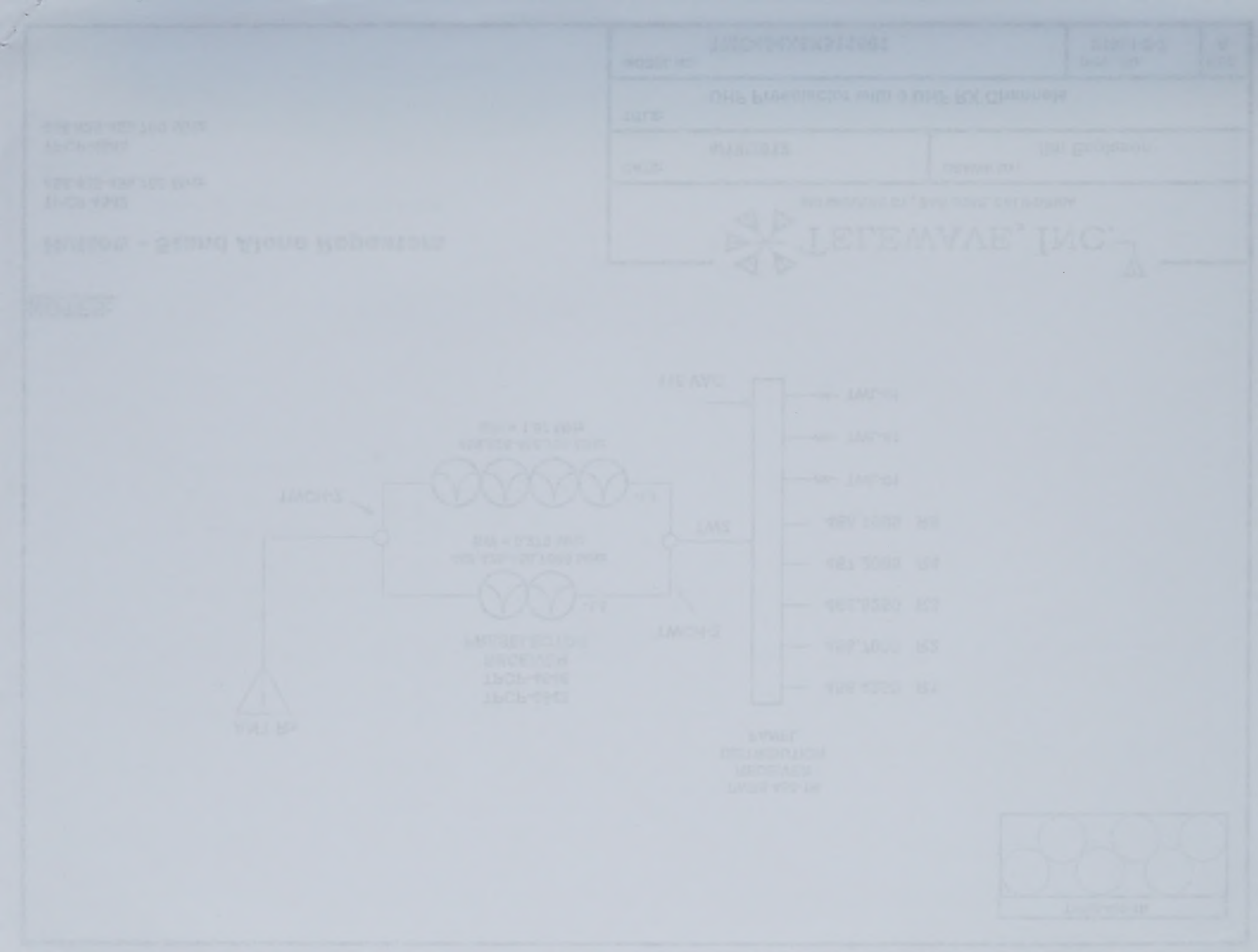
Hutton – Stand Alone Repeaters

TPCP-4542
456.425-456.700 MHz

TPCP-4544
466.825-468.700 MHz

TELEWAVE, INC.
660 GIGUERE CT., SAN JOSE, CALIFORNIA

DATE: 4/19/2012	DRAWN BY: Jim Eagleson	
TITLE: UHF Preselector with 5 UHF RX Channels		
MODEL NO: TMC454X6X511501	DWG. NO. 91351-2-2	REV. A



TELEWAVE, INC.®

The formulation of the Telewave Txylan™ coating is of course proprietary. The formulation was developed for us as a modification of an aerospace product.

The properties of this exclusive coating are uniquely suited to antenna applications, due to the bonding characteristics, the materials ability to reject water and ice adhesion, and it's ability to absorb a very large portion of the light spectrum for conversion to heat.

The Txylan™ coating is applied as a dry powder, and is cured at over 400° F. At this temperature, the Txylan™ coating chemically bonds to the base metal of the antenna. Once cured, it will never chip, crack, or peel.

Txylan™ coating is a poly-polar compound like common oil. Thus, it rejects bi-polar elements and compounds such as water, bird droppings etc. that are known to adversely affect metals used to manufacture antennas.

The light absorbing characteristics form the basis of the material's ability to de-ice itself with only marginal ambient light as is encountered on cloudy winter days. This effect is most apparent when the temperature is above 10° F and wind velocity is less than 20 MPH . Varying conditions will effect this performance, but some rather surprising situations have been observed where Telewave antennas are the only ones on a site that are not completely iced over. The Txylan™ is most effective during those marginal temperature conditions that are most likely to produce the accumulation of hoary ice when "wet snow" and sleet are present. When dry snow is encountered, little or no accumulation is observed.

Thus the Txylan™ coating effectively remains ice free during the typical ice forming period, isolates the antenna from the effects of corrosive agents and abrasives, and adds dramatically to the life of the antenna, while providing a passive de-icing quality not available from other manufacturers, even if they "paint" their antennas with black paint.

TELEWAVE, INC.